

## Wednesday, 15<sup>th</sup> October 2014

19:00 22:00 iCAT 2014 Ice-Breaking Party and  
Rapid Prototyping Journal 20<sup>th</sup> Anniversary Reception



## CONFERENCE DAY ONE Thursday, 16<sup>th</sup> October 2014

8:00 9:00 Registration

9:00 9:30 OPENING CEREMONY

9:30 11:30 ADDITIVE MANUFACTURING AND INNOVATION

**Willie Van Straaten** (Inventec, South Africa)  
Exploring Additive Manufacturing through the lens of Value Innovation

**William Cass** (Cantor Colburn LLP, USA)  
Intellectual Property in Additive Manufacturing

**Olaf Diegel** (Lund University, Sweden)  
3D Printing: Bridging the Creative Gap?

11:30 12:00 COFFEE BREAK

12:00 13:00 DESIGN AND AM TECHNOLOGIES

**Ian Campbell** (Loughborough University)  
Facilitating Consumer Involvement in Design

**Dietmar Drummer** (FAU Erlangen-Nuremberg)  
Perception and reality of additive polymer processing

**Johannes Homa** (Lithoz, Austria)  
Technical ceramics for additive-manufacturing-technologies

13:00 14:00 LUNCH

14:00 15:40 PRESENTATIONS IN PARALLEL SESSIONS

### POLYMERS IN AM

**Dimitris Karalekas, Charoula Kousiatza** (University of Piraeus, Greece)  
On the integration of fiber Bragg sensors as an in-process sensing system in additive manufacturing

**Theresa Swetly** (BMW AG, Germany)  
Elastic properties of Additive Manufacturing materials for automotive applications

**Jannis Greifenstein** (Lehrstuhl für Angewandte Mathematik 2, FAU Erlangen-Nuremberg, Germany)  
Simultaneous optimization of build orientation and topology in layered manufacturing

### LASER BEAM SINTERING AND MELTING OF POLYMERS I

**Maximilian Drexler** (Collaborative Research Center 814, Germany)  
Selective laser melting of polyamide 12 - Interaction between time dependent exposure strategies and part positioning

**Katrin Wudy** (Collaborative Research Center 814, Germany)  
Selective laser melting of polyamide 12: A holistic approach for the modeling of the aging behavior

**Stefan Josupeit** (University of Paderborn, Germany)  
Development of a Basic Model to Simulate the Laser Sintering Cooling Process

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**Damir Godec** (Faculty of Mechanical Engineering and Naval Architecture, Croatia)  
Optimization of low budget 3D printing parameters

**Miquel Domingo** (IQS School of Engineering, Spain)  
A methodology to choose the best building direction for Fused Deposition Modeling end-use parts

**Thomas Stichel** (Bayerisches Laserzentrum, Germany)  
Electrostatic Multi-Material Powder Deposition for Simultaneous Laser Beam Melting

**Andreas Wegner** (University of Duisburg-Essen, Germany)  
Influence of Process Parameters on the Part Properties of Laser Sintered Polyamide 11

15:40 16:00 COFFEE BREAK

16:00 18:00 PRESENTATIONS IN PARALLEL SESSIONS

#### POLYMERS IN AM

**Stephanie Faselow** (Institute of Particle Technology, FAU Erlangen-Nuremberg, Germany)  
Tailoring melting behaviour of LBM powders

**Stephanie Faselow** (Institute of Particle Technology, FAU Erlangen-Nuremberg, Germany)  
Production of micron-sized polymer particles by melt emulsification

**Tomaz Brajljh** (Faculty of Mechanical Engineering, University of Maribor, Slovenia)  
Study of the complementary usages of selective laser sintering during the high volume production of plastic parts

**Meng Zhao** (Collaborative Research Center 814, Germany)  
Sintering study of polyamide 12 particles for selective laser melting

**Ron Harder** (Institute of Polymer Technology, FAU Erlangen-Nuremberg, Germany)  
Long-term properties of laser sintered parts of polyamide 12 - Influence of storage time and temperature on the ageing behaviour

#### METAL AM - LASER MELTING

**Saeed Khademzadeh** (University of Padova, Italy)  
Geometrical characterization of thin walls produced by micro laser sintering

**Daniel Koutny** (Brno University of Technology, Czech Republic)  
Dimensional accuracy of single beams of AlSi10Mg alloy and 316L stainless steel manufactured by SLM

**Michael Karg** (Institute of Photonic Technologies, FAU Erlangen-Nuremberg, Germany)  
Laser Beam Melting of Amorphous Metals

**Bhrihu Ahuja** (Institute of Photonic Technologies, FAU Erlangen-Nuremberg, Germany)  
Laser beam melting of high strength aluminium alloys EN AW-6061 and EN AW-6082

**Marcin A. Królikowski** (West Pomeranian University of Technology, Szczecin, Poland)  
Customization of 2D lattice structures as response of part load conditions for SLM manufacturing

**Dariusz Grzesiak** (West Pomeranian University of Technology, Szczecin, Poland)  
Effects of the Selective Laser Melting process parameters on the functional properties of the Co-Cr alloy

19:30 20:00 **RAPID PROTOTYPING JOURNAL PRESENTATION AND ICAT BEST PAPER AWARD**  
Ian Campbell (Editor in Chief) joint presentation with Daniel Jopling (Publisher)

20:00 23:00 **DINNER**

### CONFERENCE DAY TWO Friday, 17<sup>th</sup> October 2014

9:00 9:30 Registration

9:30 11:10 MEDICINE

**Andy Christensen** (Medical Modelling, USA)  
Personalized Surgery and the Future of Medical Applications for 3D Printing

**Jules Poukens** (University Hasselt, Belgium)  
Need a New Skull or Mandible? 3D Print It!

**Radovan Hudak** (Technical University Košice, Slovakia)  
Additive Manufacturing, Verification and Implantation of Custom Titanium Implants – Case Studies

11:10 11:40 COFFEE BREAK

11:40 13:00 USING AM TECHNOLOGIES

**Deon DeBeer** (North West University, South Africa)  
Using AM to Revitalise Age Old Industries, Following a Sectoral Approach

**Emil Nigl** (VoxelJet, Germany)  
New applications in industrial 3d printing

**Peter Rosker** (EOS GmbH – Electro Optical Systems, Germany)  
Additive Manufacturing Solutions and Future Challenges

13:00 14:00 LUNCH

14:00 15:40 PRESENTATIONS IN PARALLEL SESSIONS

14:00 15:40

#### AM IN MEDICINE

**Christoph Bichlmeier** (Materialise, Belgium)  
Patient-Specific Cardiovascular Models for Educational and Training Purposes

**Lars-Erik Rännar** (Mid Sweden University, Sweden)  
Design and manufacture of a titanium tibial reinforcement cage using electron beam melting

**Andrey Koptuyug** (Mid Sweden University, Sweden)  
Multiscale surface structuring of the biomedical implants manufactured in Electron Beam Melting technology: demands, advances and challenges

**Holger Freyer** (Helmut-Schmidt-University, Germany)  
3D-printed elastomeric bellow actuator for linear motion

**Sven Maricic** (Faculty of Engineering, University of Rijeka, Croatia)  
The Application of 3D Modelling in Biofluid Mechanics

#### METAL AM I

**Manuela Galati** (Politecnico di Torino, Italy)  
Simulation of Material State Change and Thermal Distribution in Electron Beam Melting

**Vera Juechter** (FAU Erlangen-Nuremberg, Germany)  
Titanium metal sheet structures of various wall thicknesses with additional functional elements prepared by selective electron beam melting in a powder bed

**Matthias Lodes** (FAU Erlangen-Nuremberg, Germany)  
Selective electron beam melting of pure copper: influence of energy input on surface roughness and dimensional accuracy

**Daniel Riedlbauer** (Lehrstuhl für Technische Mechanik) Simulation of the Quasi Multi Beam Scanning Strategy during Electron Beam Melting of Ti6Al4V

**Carolyn Körner** (Lehrstuhl Werkstoffkunde und Technologie der Metalle) Microstructure and properties of Ti-48Al-2Cr-2Nb produced by selective electron beam melting

Rapid Prototyping  
Journal Editorial Advisory Board meeting

CONFERENCE DAY TWO / **Friday, 17<sup>th</sup> October 2014**

15:40 16:00 COFFEE BREAK

**16:00 17:40 PRESENTATIONS IN PARALLEL SESSIONS**

### DESIGN FOR AM

**Stamatios Polydoros** (National Technical University of Athens (NTUA), Greece)

Techniques and practices for the successful, cost effective reconstruction of skeletal elements of the last European elephant of Tilos with LOM and FDM Additive Manufacturing technologies: An interdisciplinary approach of AM for palaeontology

**Mathias Bratl** (CAMPUS 02 UAS Automation Technology and Marshall Plan Foundation, Austria)

Customizable Personal Manufacturing

**Kirsten Lussenburg** (TU Delft, Netherlands)

Designing With 3D Printed Textiles

**Cees Jan Stam** (TU Delft, Netherlands)

Redefining the role of designers within an urban community using digital design and localized manufacturing of wearables.

**Bogdan Galovskyi** (Institut of Manufacturing Metrology, FAU Erlangen-Nuremberg, Germany)

Model of a Measurement Artifact for Additive Manufacturing

### METAL AM II

**Alexander Klassen** (Lehrstuhl Werkstoffkunde und Technologie der Metalle)

Correlation between processing strategy and selective evaporation of light elements during selective electron beam melting

**Markus Ramsperger** (Lehrstuhl Werkstoffkunde und Technologie der Metalle)

Selective electron beam melting of the single crystal nickel-base superalloy CMSX-4

**Andreas Bauereiß** (Lehrstuhl Werkstoffkunde und Technologie der Metalle)

Simulation of selective beam melting on the powder scale: mechanisms and process strategies

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